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KOPPERS COKE

IN THE

UNITED STATES

More than 85% of the carbonizing capacity of by-product ovens built and contracted for since the introduction of the Koppers Oven in 1907 is in

KOPPERS OVENS

516 Ovens put into Operation 1914-15
825 Ovens now under Construction

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Benzol Plants for the production of Pure and Crude Products
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Ammonia Stills and Tar Distillation Plants

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A POPULAR TALK ON SEMI-INDIRECT LIGHTING.

[ROBERT FFRENCH PIERCE.]

The present vogue of so-called Semi-Indirect Lighting is due to the fact that it more nearly approaches the requirements of perfect illumination than any other commercial system of artifical lighting that has yet been developed. It combines certain desirable features—optical, mechanical and aesthetic—more completely and satisfactorily than any other method of general illumination.

In order that clear and comfortable vision may be sustained for extended periods, it is necessary—

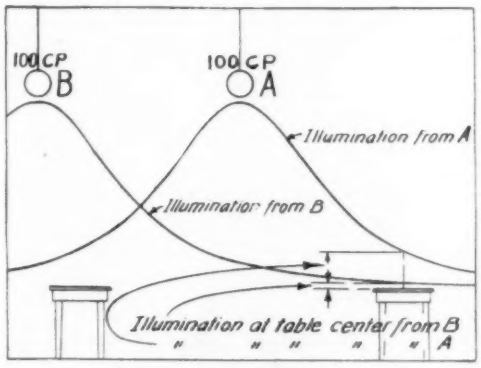


Fig. 1.—Room Lighted by One Unit.

First.—That enough illumination be provided to secure the required brightness in the object viewed.

Second.—That excessive differences in brightness over different portions of the field of vision be avoided.

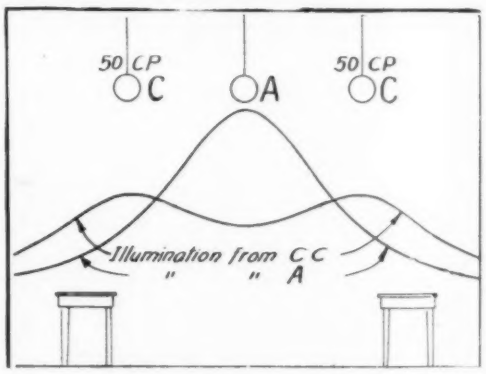


Fig. 2.—Two Units Compared With One.

The first requirement is most easily met. In fact, the most common defect of modern lighting systems—from the engineering point of view—is the provision of excessive or rather superfluous illumination. It has not been established that a considerable excess of illumination over that required by the eye is actually harmful, but it is well established that it is of no use whatever in vision, and, in fact, cannot be detected by the eye. At all events, the problems presented in connection with mere distribution of illumination are comparatively simple and fairly well understood.

The second requirement has received a great deal of attention, but thus far the factors involved have eluded all attempts to state them in definite and specific form. We know, for example, that the contrast between a candle-flame and surrounding darkness is annoying, not to say painful, yet if the whole field of vision be filled with a brightness of the same order as that of the candle-flame the result is scarcely uncomfortable. The brightness of a clear north sky is at least as great as that of the candle-flame (a fact which will become more evident by viewing it through a small

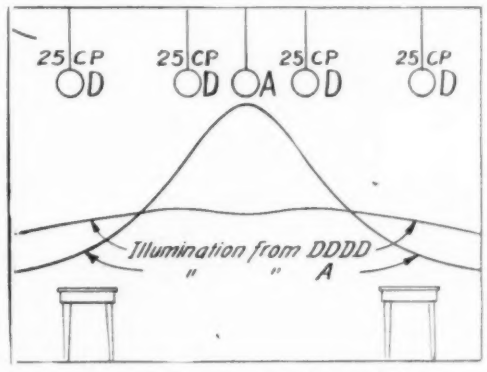


Fig. 3.—Four Units and One Unit.

opening from a dark room) yet the resultant effect upon the eye certainly fails to bear evidence of the similarity. At present, we may only say that the greater the contrasts of brightness presented, the worse the illumination; for, while a certain amount of con-

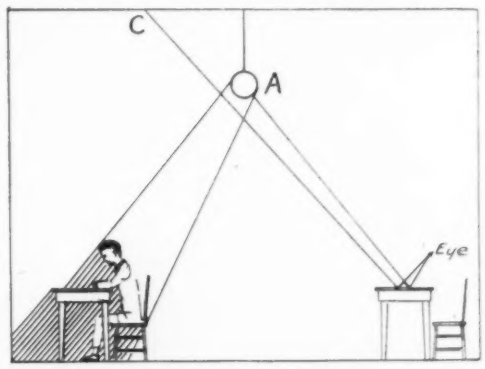


Fig. 4.—Differences of Brightness.

trast is desirable, the limit of desirability is nearly always so far overstepped in all artificial lighting systems that the danger of providing too little contrast may be neglected.

There might be added a third requirement which should, however, be too obvious to require statement—namely, that the object of vision should be the brightest surface in the field of vision. In short, light should be delivered where it is needed.

Perhaps the easiest method of establishing a firm basis for the consideration of this subject is to show the logical derivation of Semi-Indirect from Direct lighting. If any room (Fig. 1) is to be

lighted the obvious expedient is to place one outlet in the centre of the ceiling *A*, because this will be the cheapest construction and locates the light source so as to secure the highest minimum illumination, as compared with other lamp locations, say at *B*. Now, if the lamp *A* gives *sufficient* illumination on the tables, it is apparent that it is delivering an excessive and wasted quantity of light at all points nearer the centre of the room. From the standpoint of economy in light production, therefore, it is highly desirable to secure uniformity of illumination.

If we replace *A* by two lamps *C C*, each of one-half the candle-power of *A*, we will secure everywhere sufficient illumination and at the edges of the room actually more illumination than from *A*.

If we replace *A* by four lamps each of one-quarter the candle-power of *A*, we will secure over the greater part of the room a higher illumination than from *A*, and a practically uniform illumination throughout.

We have thus established the principle that the uniformity and economy of *illumination* increases as the number of light sources (of this character) increases.

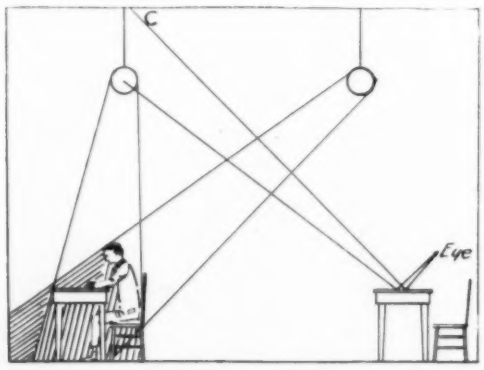


Fig. 5.—Less Difference With Two Units.

Now, let us revert to our elementary system, with a view to determining the effect upon the second requirement—uniformity of *brightness*. It is evident that the man at the left-hand table will cast a shadow upon his work, which shadow will be surrounded by an illuminated surface of greater brightness. The person at the right-hand table will also suffer from excessive brightness contrasts from another cause. The surface of the desk or of such papers as are used for clerical purposes is a crude sort of mirror which, at certain angles, reflects a smudgy distorted image of the light source into the eye. As the point *C* on the ceiling is much less bright than the lamp *A*, its image on the table-top or upon the surface of papers will be less bright than that of the lamp, thus introducing the well-known brightness contrast called "glare from glazed papers." Everyone who has attempted to read an illustrated magazine by any direct lighting system has experienced and noted this obnoxious glare. Bear in mind that it is due to the *difference in brightness between the lamp and the ceiling.*

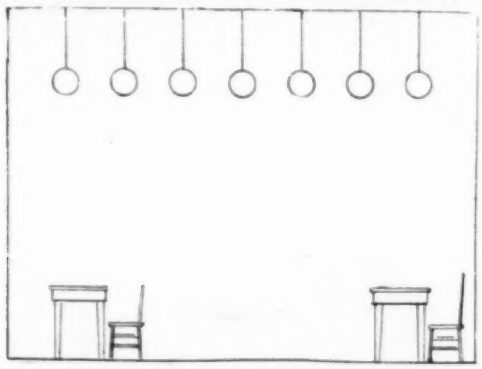


Fig. 6.—Uniform Brightness.

Suppose we now instal two lamps instead of one. It is apparent that the shadows cast by the lamps are reduced in intensity as the number of lamps is increased, since each lamp will illuminate to a greater or less degree, a part of the shadow cast by the other lamps. The occupant of the right-hand desk has, however, gained no relief by the change, as the difference in brightuess between lamp and ceiling is not altered, and the only way to improve the condition at this point is to *reduce* the *brightness* contrast. To a certain extent this may be accomplished by placing a diffusing bowl around the light source; the greater the size of this diffusing globe, the lower the brightness of the lamp and the less obnoxious the glare from glazed papers Suppose we carry our deductions to a logical conclusion, and increase both the number of lamps and the size of enclosing globes until the limits of the ceilings capacity are practically reached (Fig. 6). We would have an ideal system from the standpoint of illumination and economical use of light, but one of excessive first cost and requiring an immense amount of labor for cleaning and maintenance. To eliminate these items, we may replace the multitude of small lamps by one large unit above a deck of diffusing glass (Fig. 7), and by using a lamp giving a very high candle-power in the direction of the corners *C*, we may illuminate all parts of the glass deck to the same brightness. The

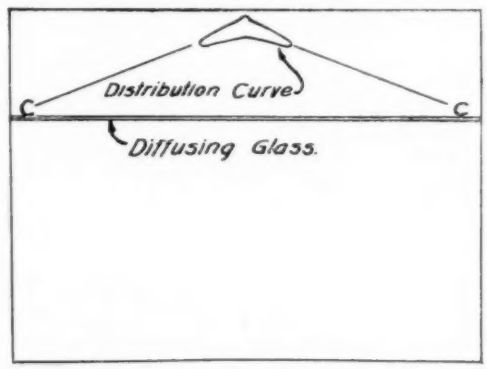


Fig. 7.—Diffusion Through Deck.

practical disadvantage of this scheme is of course the difficulty of obtaining space above the glass ceiling for the installation of lamps, and access thereto. But it is immaterial whether we diffuse light

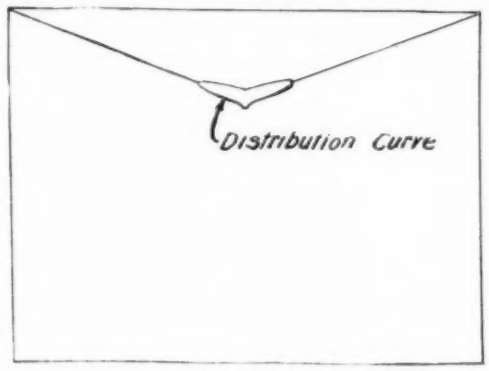


Fig. 8.—Diffusion from Ceiling.

through a translucent glass or from a diffusing opaque surface such as a kalsomined or papered ceiling, so we may solve the practical difficulties by placing our lamp *below* the ceiling, inverting its reflector and furnishing a reflecting ceiling of good quality (Fig. 8)—an arrangement which converts every square foot of the ceiling surface into the equivalent of a small lamp with large diffusing globe.

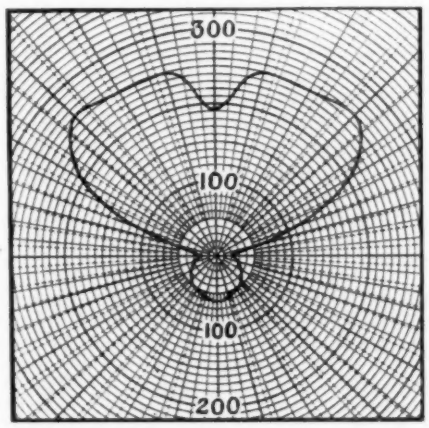


Fig. 9.—Light Distribution No. 1500 Bowl—3 Mantles.

The principal drawback of this *indirect* system lies in the absence of a *visible* light source; but this is easily obtained by allowing the reflector to transmit enough light to become just appreciably brighter than the ceiling. The distribution curve of such a reflector is shown in Fig. 9.

The above circuitous pursuit of the Semi-Indirect idea does not, of course, represent the actual sequence in which commercial types have been developed, but it is presented to show the general nature of the problems underlying all illumination design, and the essentially commercial nature of these problems.

The Semi-Indirect system has one and only one advantage over a ceiling studded with diffusing globes one foot square and at one foot spacing (that is, completely covering the ceiling), and that advantage is that the net cost of illumination is less. After figuring interest on investment, depreciation, attendance, etc.. it is found to be less expensive to install and operate the Semi-Indirect system than to install and operate several hundred small lamps and globes.

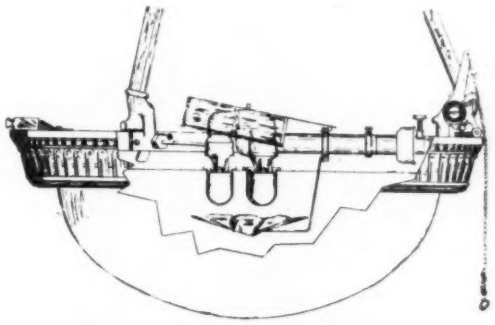


Fig. 10.—Section of Kinetic Fixture.

The development of a gas lamp for Semi-Indirect lighting necessitated several radical changes in design that involved excursions into altogether new territory. Until the development of the type of burner shown in Fig. 10, it was believed that the enclosure of the mantle in glassware and the provision of a "stack" above the lamp were essential features in the efficient incandescent gas lamp. Making the bowl deep enough to accommodate the cylinder and conceal the stack resulted in a type of fixture anything but beautiful, even when it was not obtrusively ugly.

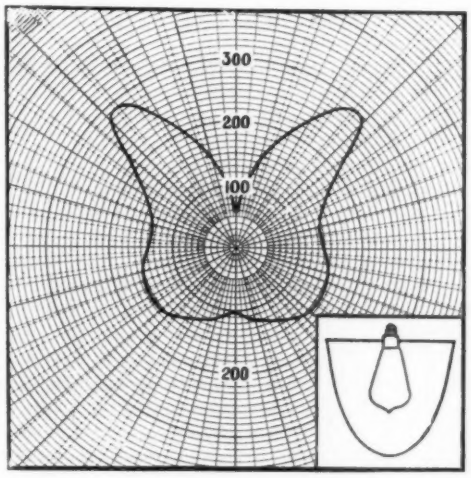


Fig. 11.—Light Distribution Veluria Bowl—250 Watt Lamp.

The stack and the cylinder apparently serve the same function—increasing the velocity of combustion products as they leave the flame, and thus provide better facilities for the access of secondary air. In order to do away with these features it was necessary to devise some means of increasing the entrainment of primary air, and thus render the secondary air of less importance. If a high proportion of primary air entrainment is to be obtained, it is necessary to secure very uniform and intimate mixture of gas and air, otherwise there will be over-aerated "streaks" along which the flame may flash back to the orifice and render the burner useless until relighted. It is also desirable that the mixture of gas and air be expelled from the "nozzle" or "tip" as forcefully as possible, in order to effectively oppose the tendency of the flame to travel back to the orifice. To accomplish these two purposes, as well as for the entrainment of primary air, recourse must be had to the kinetic energy of the gas stream issuing from the orifice, and it is only by skillful conservation of this energy that all these things can be accomplished in a satisfactory degree. Experiments covering several years were rewarded by the development of principles of design that permit us to cut loose from many of our previous limitations and enter hitherto forbidden fields, not the least important of which is Semi-Indirect lighting.

There are so many kinds of lighting units of the same general appearance that have come to be identified as "Semi-Indirect" that it is well to consider wherein they differ and the kind of work for which the characteristics of each are particularly suited.

Fig. 11 shows an extreme type of distribution in which none of the advantages of the Semi-Indirect system are obtained. In fact, a ball globe of the same material and diameter would be as good in every way. This particular curve was obtained from a reflector containing a tungsten lamp hung about 2″ below its proper location. The same results would, of course, follow the use of gas burners under similar conditions. Such a distribution is practically a Direct lighting unit, and should be used only where the elimination of glare and light shadows are of no importance. It is quite suitable for a store, a hotel lobby, a restaurant, etc., but atrocious in an office, library or drafting room.

An excellent type of distribution is that shown in Fig. 9, which gives but little direct light. The ceilings should of course be quite light in color, and ample allowance for absorption must be made.

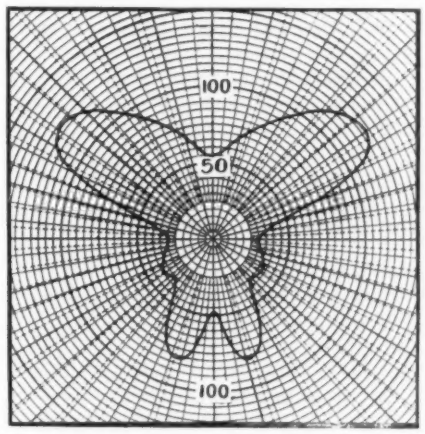


Fig. 12.—Light Distribution No. 767 Shade—C. E. Z. Light.

Fig. 12 shows the distribution of light from a small gas unit of approximately 80-candle power designed to replace open flame tips. This unit is shown in Figs. 13, and in 14 and 15 installed in a fix-

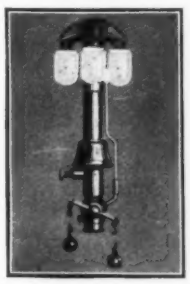


Fig. 13.—C. E. Z. Unit.

Fig. 14.—In 4-inch Globe.

Fig. 15.—Three Arm Fixture With C. E. Z. Units.

Fig. 16.—An Example of Good Lighting.

ture. By it any well designed open flame fixture may be converted into an effective semi-indirect fixture at trifling cost, and at no sacrifice of appearance.

Figs. 17-18.—Efficient Fixtures.

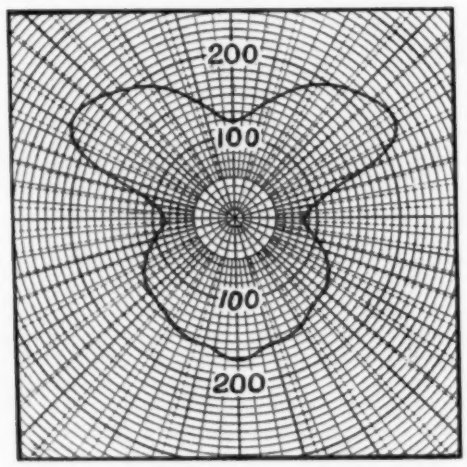


Fig. 19.—Light Distribution No. 1502 Bowl—3 Mantles.

Fig. 16 shows a restaurant lighted by semi-indirect gas fixtures; one of the favorite Chestnut street restaurants in Philadelphia. The fixture used was substantially the same as that shown in Fig. 17. A less expensive fixture of the same general type is shown in Fig. 18. In this particular design the glass is quite translucent, giving the distribution curve shown in Fig. 19. Such a curve is particularly suited to places where ceilings are comparatively dark and the peculiar virtues of the strictly semi-indirect system are not required.

Accidents That Could Have Been Prevented.

This is one of Mr. J. B. Douglas' last issued lists of removable dangers:

Pure carelessness is responsible for many injuries. An employee upon finishing work on top of a tank started throwing his tools to the ground. As another employee was passing he was struck on the head by one of the tools.

A heavy window in a retort house instead of being equipped with counter-weights was propped up by a stick. The stick slipped, allowing the window to fall and crush a man's hand. Many hazardous conditions such as this are not recognized, simply because they have existed so long that they pass unnoticed until an accident draws attention to them. This is one reason why it is advisable to have accident hazard inspections made by persons not familiar with the premises.

A meter reader was carrying a defective electric torch and to read a meter used a match. Gas from a leaking meter connection ignited and the man was burned. Several errors are pointed to here. First, the torch should have been turned in and a good one obtained. Second, the man should have detected the odor of gas and reported the leak. Third, he disobeyed the rule forbidding the use of matches.

Bad judgment was displayed by a foreman who failed to promptly fill in or guard the hole from which an electric light pole had been removed, particularly as it was in front of a school house. A boy running from the school yard fell into the hole and was injured.

Two employees were scuffling and one obtained an injured shoulder. Horse-play in and around shops and plants has caused serious injuries, and should be avoided.

As an employee was leaving the generator house, an icicle fell from the roof and struck him on the head, inflicting a severe scalp wound. Recently a newspaper published an account of a workman critically injured by a cluster of falling icicles. Proper inspection should be made to guard against this type of accident.

An employee injured his hand slightly and neglected the wound, which became infected. First aid cabinets are located at all plants, and had this man taken the trouble to report the accident and receive treatment preventing infection, he would have avoided trouble.

AN EXHIBITION IN A SMALL TOWN.

One End of the Hall, and the Stage.

Some people seriously question the advisability of holding an exhibition in a small community, and they may find a help towards the solution of this question in the following description of a Public Utility Show held in Ossining, N. Y., May 3 to 8, inclusive.

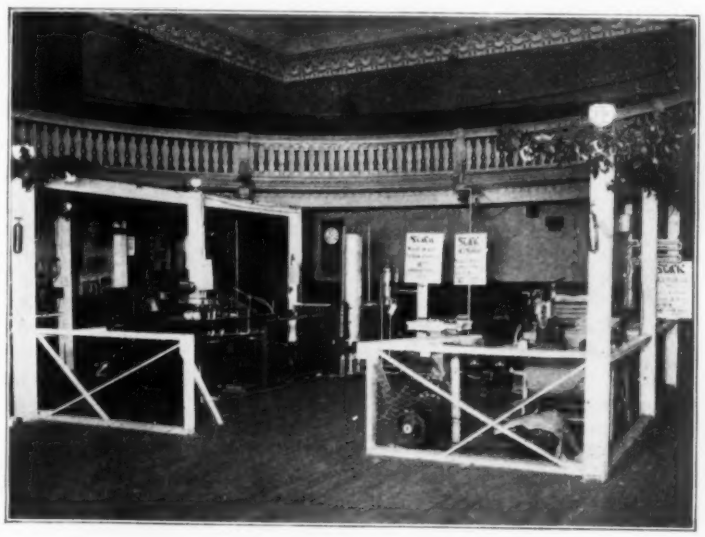
The village of Ossining has a population of about 11,000 and is supplied with gas and electricity by the Northern Westchester Lighting Company. The employees' organization of the Company, known as the Northern Westchester Gas and Electric Club, held a small exhibition in the spring of 1914, and, as this had been successful, decided to hold a larger show this year. The subject was taken up with the officials of the Company, and having secured their consent and assistance, plans were made and work started.

The Club hired the Opera House, arranged for the leasing of the booths, mapped out a daily program and secured the advertisements for it, while the company furnished the materials for booths and gave the lighting and labor with the exception of the time of those on duty during the evenings of the show, which was contributed by the club members.

The outside of the building was illuminated by large tungsten lamps of the nitrogen type; in the entrance hall, pipe arches were constructed and the hallway was lighted by means of Welsbach arcs hung in the centre of each half circle and two reflex lamps with decorative shades on either side of the arch. The main hall was lighted by a large nitrogen type lamp suspended from the ceiling and decorative lamps on the booths. In the center of the hall was a cement stone fountain, loaned by a local firm, surrounded by a grass plot and having an electric light in it which illuminated the water kept playing by means of a motor driven centrifugal pump.

Arranged around the sides of the hall were the booths in which were the exhibits of the lighting Company, manufacturers of gas and electric appliances and some of local firms. Seats were placed on the stage and cooking demonstrations held every afternoon and after the moving pictures in the evening. These demonstrations were well attended by the ladies visiting the show. Through the courtesy of the Westinghouse Electric & Manufacturing Company, the General Electric Company, and the L. E. Waterman Company, a program of advertising and educational films were secured, and two reels of these were used each evening and were found to be of considerable interest and help.

A number of demonstrations were arranged to attract attention as well as to instruct. Among these was a prepayment meter fixed to pass 1c worth of gas, which was consumed on a bank of burners; a series of different kinds of gas and electric lights; an Ives Artificial Daylight Producer to show the effect of the different lights on colored ribbons; poor and good window lighting; effect of water in a trapped house pipe; open flame and mantle burners consuming the same amount of gas, thus showing the advantage of the mantle burner; carbon and tungsten lamps of the same wattage to show the advantage of the tungsten lamp; exhibits of the materials and different steps in the process of making Welsbach mantles and tungsten lamps; a large electro magnet, which was usually surrounded by a crowd of boys trying to remove the iron blocks held on by magnetism. Arrangements were made with a local baker, and breads and rolls were baked in a gas fired oven and sold to visitors.



The Company's Booth.

In the Lighting Company's booths were exhibits of lighting fixtures, vacuum cleaners, water heaters, industrial fuel appliances, washing and ironing machines, and gas and electric irons.

Other exhibitors who showed a line of specialties were:

American Gas Furnace Company,
W. & V. Beecroft,
E. Billington,
W. M. Crane Company,
General Electric Company,
Helme & McIlhenny,
Ossining Garage Company,
Ossining Pressed Stone Company,
Shapiro & Aronson,
Stack Heater Company,
Union Stove Works,
F. A. Waterbury,

H. L. Hildreth & Co., Welsbach Company,
A. M. Hitchcock, Westinghouse Elec. and Mfg. Co.
Albert Kamp, Westinghouse Lamp Company.

The Club had a booth in which one of the local candy men made candy, using a gas-heated confectioner's stove and an electric-driven candy-pulling machine. The sale of this candy and soft drinks, together with the advertisements in the daily program, helped to turn some money into the Club's treasury. The attendance for the week was 3,804, which probably would have been larger but for showers that occurred on four days on which the show was held.

To increase business, special prices were put on appliances during the show, and a special campaign for both gas and electric irons was made, in which the turning-in of an old iron of any kind counted as 75 cents credit towards the purchase of a new one, and this resulted in the sale of a large number of irons.

An advertising feature made use of was a guessing contest for a cabinet gas-range and an electric toaster-stove. An odd shaped glass jar was filled with beans whose number was to be guessed, and placed in one of the local dry goods store windows, the only requirements in the contest being that the person guessing must live in the territory supplied by the lighting company and must deposit the guess in person in the box at the show, which assured their attending the show at least once.

As far as could be ascertained, all the exhibitors were entirely satisfied with the results obtained; and for the lighting company, the orders and sales at the show and those received since that can be directly credited to it, amount to a little over 70 per cent. of the money spent by the company in financing the show. Besides these there are prospects that will be turned into orders later. The general feeling is that the Public Utility Show will be an annual feature from now on.

Neutral Oil from Coal Tar.

Crude tar made on distilling coal is strongly acid and attempts have been made to neutralize it by treating with lime or other alkalis. Neutralization by alkali has also been used to separate phenol from tar, but no attempts have been made to extract from the tar thus treated, a neutral oil that might be used as a substitute for petroleum. Such a process has been patented in France by MM. Markl and Lorand. The following is taken from their specifications:

Crude tar, or the liquid residue, known as "Carbolineum," obtained after the distillation of its more volatile products, is mixed with a dilute aqueous alkali solution, and allowed to rest with occasional stirring. As soon as the aqueous layer has a light garnet-red color, which it acquires after a time, the tar is run off and distilled. After the water and ammoniacal liquor have come over, distillation gives an oil of a light color, which constitutes the new product. At 100° C. water comes off; and at 100° to 110° C. ammoniacal liquor. If the temperature is then raised to 130° to 150° C., quiet boiling is produced. At 200° to 280° C., a turbid oil flows, and afterwards a transparent oil of a light color, suitable for burning for heat and light. It is light yellow in color with a green fluorescence, very fluid, and with a slight odor of tar. At 15° C. its specific gravity is about .9997.

It contains by weight, 80.39% of carbon, 7.74% of hydrogen, and 11.87% of oxygen, nitrogen, etc. The calorific power is very high (8,313 calories) as it contains 88.13% of carbon and hydrogen. The flash point is from 70° to 75° C.; the burning point, 110° to 115° C.; and the freezing point—20° C. It is claimed that from 100 parts by weight of tar the process will give 45 to 50% of the new oil; and from tar previously freed from volatile compounds, 90%.

President Crawford's Address to the Eleventh Annual Meeting of the Iowa District Gas Association.

Gentlemen of the Iowa District Gas Association, I thank you for the honor you bestowed on me by electing me President, and also the compliment you are paying the city of Clinton by again coming here for a meeting. As you know, Dubuque was chosen, but on account of the unfinished condition of their hotel we decided to ask for the meeting for Clinton, and our request was unanimously agreed to. We are glad to see you here and be your host.

In arranging our program we have tried to bring to you papers on present and active subjects, and we hope that full and liberal discussion may be brought out on all the papers.

The past and present year will probably go down to posterity as two of the most notable in the world's history. A war in which more men and people are engaged than any before known is now in progress. This war has made its effect felt in the entire world—in industrial, religious, political and many other ways. New ideas of warfare have been precipitated, and the results and after effects cannot at this time be forecasted.

The gas industry has felt the business depression due to the war and other causes possibly less than any other American industry. Gas is now being universally used, and has become a household necessity, its use in industrial plants has grown to so great an extent that it is becoming practically as essential as power in modern manufacturing operations. New ideas are being applied daily in industrial operations. Even in modern warfare gas is used, and much discussion is prevalent in the daily press and among peoples, as to whether this method is not more humane than explosive projectiles.

Some progress has been made in the past year in the manufacture, distribution and uses for gas. In distribution, oxyhydrogen and acetylene welding has become an economical factor in the laying of mains, reparing broken mains and services and the elimination of leakage.

In the manufacturing end of the business the principal development has been along the lines of coal-gas plants, using inclined and vertical retorts. The war across the water has caused imports to stop, by-products of coal and water-gas tar and dyes for cotton and woolen goods being the most serious industries affected in this manner. A number of plants and operations are starting in this country to manufacture these materials, as well as many of the lighter oils which we have been importing and wasting. The competition among coal-gas companies and by-product plants in the marketing of coke is fast becoming a new factor in the production of coal-gas in Iowa. The enormous amount of coal carbonized in the plants must be marketed, and this coke comes in competition with the local coal-gas operations. The reduced price of coke to the consumer by the companies must be made up by increasing the manufacture of other by-products and curtailing costs of operation in other ways.

In the new business department of our industry many new and attractive appliances are offered Gas ranges are especially attractive at present; automatic water heaters and new and economical gas irons have been successfully marketed. The cabinet gas range, enamel and nickel trimmed, has become a household ornament, making the kitchen surroundings more attractive and pleasant. The incinerator takes up little space and disposes of the garbage in a more sanitary and satisfactory manner than any other way formerly in use. The inverted gas lamps, in clusters and singly, as well as the inverted arcs, prove successful sellers in competition with the Mazda and Type "C" electric lamps. That gas is still a factor in illumination, as well as for industrial and domestic purposes, is proven by the large number of uses to which gas is put at the Panama-Pacific Exposition. From information I gather, the exhibits of gas appliances and applications of gas at the Exposition are greater and better than any ever before shown.

The movement for municipal ownership of public utilities has made very little progress the past year, the people generally being satisfied with good service, fair rates, reasonable compensation to the companies, and courteous attention—the things for which all progressive gas companies at present are striving.

I attended the convention early this year at which the Wisconsin Gas, Electric and Street Railway Associations consolidated their meetings, having some general meetings and other sectional meetings of each utility represented. The idea appealed to me as a good one for our Association, and I would like the committee on this address to make some recommendation, having in view, ultimately, a general meeting-place at the same time for the Iowa District Gas Association, the Iowa Electrical Association, and the Street Railway Association. This would result in a good many savings—time, expense, etc., as well as a more varied program, a larger acquaintance among utility interests, and a combined front on legislative matters.

The part of the country in which we live and operate has been more fortunate in a financial way than our eastern and western neighbors during these strenuous times, due largely to our successful agricultural activities, all of which should tend to improve the value and scope of our operation. I believe there is a larger future for the use of gas in new and undiscovered fields, as well as along the lines of present development, than at any other time in our history.

We have tried to arrange an interesting program, as well as enjoyable entertainment, and I trust that your stay in Clinton will be pleasant and profitable.

[Special Report to the JOURNAL.]

SOUTHWESTERN ELECTRICAL AND GAS ASSOCIATION.

The eleventh annual convention of the Southwestern Electrical and Gas Association was held at Hotel Galvez, Galveston, Tex., May 19–22, 1915. The association has been so successful in getting a good attendance at Galveston that for the third time the meeting place has been here. The total registration of members and guests this year was about 400, approximately as many as last year.

The opening session was called to order by President D. G. Fisher. Mart H. Royston, city attorney, delivered the address of welcome, which was reponded to by John A. Bonner. Secretary H. S. Cooper showed in his report that the Association had had a slight increase in membership in spite of the general business depression, and that the Association through its permanent secretary's office is getting much splendid assistance. Mr. Fisher in his presidential address said:

"To-day, for the eleventh time, our association meets in annual convention, but the organization on May 22, 1895, was the Texas Gas and Electric Light Association, and 3 years later it was consolidated with the Texas Street Railway Association, and in 1902 a joint meeting of the Southwestern Electrical Association and the Southwestern Gas, Electrical and Street Railway Association was held, at which time the two organizations were consolidated under the name of the Southwestern Electrical and Gas Association, and to-day we find it the strongest State association in the United States. Its prime object is "to foster and promote the common interests of its members, and to advance scientific and practical knowledge in all matters relating to electric light, electric power, electric railway, telephone, telegraph and gas companies; also to establish cordial and beneficial relations with kindred associations, and between the supply men and the members of this association. It may render assistance and advice to its members not inconsistent with the purposes above expressed.

"The past year has been a strenuous one for all of our members. Public utilities have been passing through a most crucial and critical period, not so much by reason of any changes in the methods of doing business, but because of the attitude of the general public towards all public utilities, as well as from the problems arising through the evolution of governmental regulations. There is great need of effective publicity. For many years the practice of public service corporations was to observe silence as to all their affairs. There is little cause for wonder that as a result of this practice, the public became imbued with suspicion and distrust; prejudice and misconceptions were formed against which we must now contend. The temporary judgment of the people is often wrong, although our system of government is founded on the theory that the people rule, and that their final judgment is right. Surely, therefore, it is the part of wisdom to lay our case fully and fairly before the tribunal to which we must appeal. There is, I believe, a big need for closer co-operation between the public and the public utilities of the southwest. No better code of principles could be adopted, as a starter, than those laid down by President Wilson in his address before the midwinter meeting of the American Electric Railway Association which are:

"First.—The rule of publicity—not doing anything under cover—letting the public know what you are doing, and judge of it according as it is.

"Second.—Give the full equivalent for money you receive.

"Third.—A certain kind of conscience in business, a feeling that we are after all in this world because we are expected to make good according to the standards of the people we live with.

"Fourth.—The rule of having the spirit of service.

"My idea is that the lesson of the 'jitney' should be taken to heart by every other kind of public service, and they should be in a better state of preparedness than was the street railway in this instance."

The address of C. B. Scott on the general subject of accidents was next in order, and was one of the best received papers of the convention.

At 11:30 the general session was adjourned, and two section meetings were held, the street railway section and the gas section. President Fisher presided over the former and R. G. Soper, of the Dallas Gas Company, presided over the gas section. The gas men had about the usual number in attendance, and the discussions were spiritedly participated in.

SPECIAL GAS SESSION, MAY 19, 1915.

The meeting was called to order at 11:30 A.M. by R. G. Soper, and the following communication from the secretary of the association was read:

To the Chairman of the Gas Session: In the words of the late President Grover Cleveland, the gas interests of Texas—both manufactured and natural—may truly say, "It is a condition, and not a theory, that confronts us!"

Therefore, your Secretary desires to call to the attention of the gas members of the Association not only the fact of *a* "condition" now confronting them, but of *several* which have arisen in late years in Texas, and for the probable results of which it will be wisdom for the gas men to prepare themselves.

One cause of the unsatisfactory aspect of public utility business is the timorous policy of the utilities toward events and conditions plainly looming up in the future. It can be nothing but timidity, because in nearly every case these "coming events" have so plainly "cast their shadows before" that almost anyone could have known of their coming. It is a dangerous policy to ignore "the handwriting on the wall", and he who never "crosses a bridge before he comes to it" may find it gone, or unsafe to use, when he needs it most. The only sane and safe business-like course is to look ahead without fear of what may be seen—and prepare fully for what may be coming.

The development of natural gas fields in and close to Texas, and the prospects of further developments bring to both manufactured and natural gas men problems of the gravest character. To the manufactured gas operators still left in Texas there is the possibility of an invasion of their territory by natural gas, as has been the case in quite a number of localities. This means not only the destruction or great diminution of their manufactured output, but brings with it the additional problem of what to do with their wholly or partly superseded apparatus. The apparatus and machinery for the manufacture of gas is of such character that its depreciation by non-use is very great unless money is spent to keep it in condition for prompt resumption of manufacture. If it is decided to retain the whole or a part of the manufacturing, purifying, storing and distributing apparatus as a reserve or auxiliary in case of failure or diminution of supply of natural gas, the owners face a large and unprofitable outlay in keeping this apparatus ready for use. On the other hand, if, with the idea that the natural gas may give out and a resumption of gas making result, the conservation of the plant for an unknown time will be a drain on the finances and a cloud on the securities of the property.

If the prospects of a continued supply of natural gas seem almost a certainty, the manufacturing gas man faces the situation where he will have to decide whether to abandon his manufacturing plant entirely and sell it for what he can obtain for it, whether he will hold on to it at a heavy expense for idle maintenance, or to let it naturally depreciate and not spend any money on its preservation. In addition to his problems, the manufacturing plant will have to assume some of the problems of the consumer. In the change from manufactured to natural gas there are many conditions that affect the consumer, and in these he will look to the gas company to forefend him from financial loss, from increased expense or a less safe and satisfactory service. In connection with the consumer also arises the question of prices and rates. If he has been using manufactured gas his rates for natural gas will, in nearly all cases, be less; and if it happens that the natural gas supply gives out, or be so much lessened that all consumers cannot be supplied, there comes the question of an increase of rates to the consumer if he is again supplied with manufactured gas.

Were there any certainty that the supply of natural gas, as now developed, would be permanent in quantity and quality, the problem would be much simpler. All experience, however, leads to the belief that a supply of natural gas is not only *not* inexhaustable, but that, through humanly uncontrollable conditions, it may, more or less suddenly, "peeter out" at the moment of its apparently greatest supply. Experience leads gas-fuel men to believe that the natural storage or quantity of natural gas within each "field" is limited in quantity, and is not capable of any large or immediate renewal, and that therefore once any "field" gives out or steadily

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The Right of Appeal.

The decision by the New Hampshire Supreme Court in the case in which the Grafton County Electric Light and Power Company appealed from the order of the Public Service Commission denying approval of a plan to purchase the properties of the Mascoma Electric Light and Gas Company and the Lebanon Electric Light and Power Company, remands the case to the commission for further proceedings. The action of the court broadens the right of appeal under the law and also takes up the question of capitalization of surplus. The Grafton company sought to acquire the other two companies for $300,000 of its securities, but the commission denied the petition on the ground of excessive capitalization.

After the commission denied the petition a request for a rehearing was refused, the commission declining to state whether there were any reasons apart from the alleged excessive capitalization why the proposed purchase and consolidation was contrary to public good.

Counsel for the commission argued before the court that there was no appeal from its decisions except on matters of law, and that if there was any evidence to support its orders they could not be overruled. The Court on April 6, overruled the contention as to the right of appeal, and said that the question is not whether the commission acted honestly, or whether there is or is not some evidence to support the conclusion of the commission, but: Is the mind of the appellate tribunal satisfied that the order is unjust or unreasonable? The Court held that the determination of value is a judicial question. What the public good requires is a question of fact; as is also whether a particular rate is reasonable. Whether as a matter of policy it is for the interest of the public that the conclusions of the commission should be final and conclusive is not a judicial question.

Following a decision by the Court made in January, directing the commission to state whether there were any reasons apart from alleged excessive capitalization why the proposed consolidation should not take place, and also what capitalization it would approve, the commission ruled that, entirely irrespective of questions of value, the proposed purchase and consolidation would be contrary to the public good; among other reasons, because it would involve a capitalization of the surplus of the two companies, and that, as one holding company owned all the stock of the companies to be merged, no actual consolidation was necessary. It declined again to fix a value for the properties. In overruling this order the Court on May 4 said in part:

"If it is reasonable that a person or a corporation have liberty to take a certain course with his or its property, it is also for the public good. It is the essence of free government that liberty be not restricted save for sound reason. Stated conversely: It is not for the public good that public utilities be unreasonably restrained of liberty of action or unreasonably denied rights as corporations that are given to corporations not engaged in the public service."

Regarding capitalization of surplus, the court says there is no provision in the statute that a corporation shall not sell all its property and receive the full value thereof, even if the sale be to a new corporation whose stock is to be taken in payment by the old corporation or its stockholders; the capitalization of a surplus by means other than a stock dividend is not prohibited.

The reasons given by the commission and urged by counsel for the State for denial of the application were that the capital would be increased largely; that an increase should not be permitted without a corresponding increase of assets, especially where the owners of the stock had bought it for less than its value and purposed to make a profit in this way.

The Court said: "It may be that the Company has property that it can properly capitalize which it would not be entitled to treat as a part of that used in developing electrical energy and upon which it therefore could not base present rates. It may capitalize what it owns, but it can make rates only on the basis of so much of its property as is devoted to the business. Upon the question of what rates shall be permitted, the issue is one of a fair return for the service rendered, not of a fair dividend upon the capital of the corporation. It was urged as a reason for denying the petition that the public had some interest in the surplus accumulated, so that it could deny to the owners the full enjoyment thereof. The authorities are clear that this surplus is the property of the company."

In conclusion the court holds that it is reasonable that the companies be permitted to transfer their property to the Grafton company for securities of the latter company representing the value of the property transferred.

The outstanding stock and bonds of the two companies aggregate $118,000, and the commission fixed the value of the properties at $152,000. Following this declaration the court ruled in an earlier decision that the commission was in error in refusing to make findings of fact or law requested by the utility, and that any litigant is entitled to know the reasons by which the commission was governed in deciding any matter before it.

Mid-Year Conference, N. C. G. A.

The 1915 Mid-Year Conference of the National Commercial Gas Association opened on Thursday morning with meetings of all the committees as scheduled at 61 Broadway, New York; that of the "Development of Industrial Fuel" being an open meeting, which attracted a total attendance of 30 to discuss the short papers presented.

The Merchandizing Session at 2 o'clock in the Auditorium of the Consolidated Gas Company's Building, was called to order by President H. B. McLean, who, after a short address, introduced Mr. Geo. B. Cortelyou, President of the Consolidated Gas Company. Mr. Cortelyou spoke with his usual clearness of insight as to present day tendencies; calling attention to the need of at least nearer uniformity in legislative action of the different States affecting public utilities; of the influence of the N. C. G. A. in improving ideas of service; of the component parts that go to form public opinion, and how the Association and its members could help to influence them; of the value of publicity and the enormous wastes in misdirected and ill conceived advertising; of the necessity of preparedness in business plans as in National affairs; of the power of simplicity and directness as exemplified by a few things well done. The whole thought of his remarks was summed up in "thorough."

Mr. W. J. Clark, the first president of the association, reply expressed the appreciation of the Association and referred to Mr. Cortelyou as an examplar of personal preparedness.

President McLean then called on L. E. Bigelow, whom he designated the founder of the Association, to speak of its history; and G. B. Graham spoke of the work of the Utilities Publication Committee. The topic for the session was then introduced, "Relations

Between the Gas Company and the Dealer," President McLean asking Mr. Philmer Eves to open the discussion. Mr. Eves handled the subject at some length, answering the first inquiry ("Should Gas Companies discontinue the sale of appliance") to the effect that such a course would be a decided mistake. "Should Gas Companies engage in the sale of other merchandise than Gas Appliances," he answered affirmatively, noting the many small gas range accessories the companies should sell. "Can Dealers compete with Gas Companies in selling Appliances for Cash and on Installments," he considered was being made possible by bringing appliance prices up to more profitable figures. Answering, "Should Dealers be Co-operated with, though selling appliances not handled by the Company, if Standard Appliances are Approved," he said here was the Company's opportunity to improve the quality of the appliances sold in its territory. For the fifth question, as to the possibility of regulating the sale of approved appliances by dealers, he recommended the payment of a commission or bonus on the sales of satisfactory appliances, to drive out cheap and harmful goods.

Mr. J. B. Myers told of the agreements made with the Philadelphia Plumbers Association, how his company used them as solicitors, etc. Mr. Roper said the gas companies must control the sale of appliances or the manufacturers would be forced to build for profit rather than for service. Mr. Crane said the buyer looked to the company for maintenance of appliances, and the dealers would not push gas appliances; and mentioned a company, which has dealer competition, that insures appliances sold by it against damage by fire. Mr. Hanlan said the companies must control the sale of appliances, and told of their system of discounts to contracting plumbers and builders. Mr. Korthaus answered the questions consecutively; "no" to number one and two, "possibly" for number three, "yes" to numbers four and five. Mr. Barnes said the lighting fixture manufacturers must depend on the companies to sell efficient articles, as the dealer ordinarily looked only for price competition; and mentioned the possibility of co-operation with dealers shown by the work at New Haven. Mr. Eves explained what New Haven was doing, and showed photos of their display rooms and the posters they gave to dealers. C. E. Robertson said the charging of a fair profit on all appliances was a solution of most of the difficulties. Mr. Newman called attention to the importance of controlling the sale of lighting fixtures and lamps to keep out the ten cent variety. Mr. G. E. Harris advised never letting a third party come between the company and the consumer; co-operation with the dealer to raise quality, and the value of getting the plumbers to attend your educational employees meetings. Mr. Gardner pointed out the wisdom or working with, rather than against established interest. President McLean spoke of the self supporting Sales Department, and of some companies adding 100% to the cost price of appliances. Mr. Garrison warned the sales would almost cease if the companies stopped selling appliances.

Mr. Ware, for the Central Development Bureau, reported the work done looking to the establishment of a Central Testing Laboratory, and the need and great possible value of such an authority.

The President announced that Friday's morning session would be opened by an address by Mr. McBride of the National Bureau of Standards; and the session adjourned.

Those who did not attend the Reception and Dinner to the Officers and Directors of the Association, given at the McAlpin by the New York Section, "Gas Meeters," have cause for regret. The reception in the Green Room was not a "line-up hand shake affair," but a real sociable half-hour with 140 gas men distributing. The Banquet Hall adjoining just held the necessary number of "tables of eight," and the dinner served was all that could be wished for, with good music.

When the menu was completed Chairman Campbell voiced the honor felt by the Meeters in entertaining the Association heads, and turned the meeting over to toastmaster W. J. Clark. Mr. Clark was never more pat in his comments or as happy in his story telling. Mr. McLean acknowledged the courtesy of the "Meeters" in behalf of the Association, in his usual terse way. Mr. Hewitt, of Toronto, spoke very feelingly of conditions in Canada, and of our changing outlooks. Grand Commissioner Dutton spoke for the "Meeters" and their efforts toward making the "four-square man."

Mr. Bartlett told of his retirement from office, and the decadence of oratory. Mr. Ralston, who succeeds Mr. Bartlett as chairman of the Philadelphia Meeters, told of his first job, and that it happened to be in a grocery store on the site of the hotel in which they were dining.

Chairman Campbell interrupted just here to call for the report of the tellers who counted the ballots of the annual election of the New York Meeters. Mr. French reported the following chosen, and the largest vote ever registered:

Chairman—C. E. Chapple.
Commissioners—J. P. Conroy, H. D. Gillingham.
Secretary-Treasurer—A. M. Berg.

The chairman-elect responded briefly to a call to the "Charlie Chapman" of the "Gas Meeters," and retiring-Chairman Campbell promised the incoming administration the hearty support of all in the organization.

The speech of the night, and in this we include not only those at the McAlpin but all in New York, was that by Mr. E. J. Cattell of Philadelphia. His theme was the Joy of Living and the growing recognition of man's right to more play and less work time. It is impossible to describe this address, with the wealth of humor and pathos, and how he brought his hearers literally to their feet. As Toastmaster Clark said, no comment could be adequate, and with the thoughts given by Mr. Cattell the gathering adjourned.

Illuminating Engineering Society Elections.

By the recent election of the Illuminating Engineering Society, the following officers of the society and its several sections were chosen for various terms beginning October 1, 1915:

President, Dr. C. P. Steinmetz; general secretary, Alten S. Miller; treasurer, L. B. Marks; vice-presidents, Clarence L. Law and J. L. Minick; directors, W. A. Durgin, M. Luckiesh and J. Arnold Norcross.

Chicago Section.—Chairman, E. W. Lloyd; secretary, O. L. Johnson; managers, A. O. Dicker, H. M. Frantz, C. A. Luther, A. H. Meyer and F. A. Rogers.

New England Section.—Chairman, Louis Bell; secretary, S. C. Rogers; managers, J. W. Cowles, W. B. Lancaster, George P. Smith, Jr., H. F. Wallace and R. C. Ware.

New York Section.—Chairman, D. McFarlan Moore; secretary, Norman D. Macdonald; managers, Thomas M. Ambler, L. H. Graves, W. F. Little, E. R. Treverton and Herbert S. Whiting.

Philadelphia Section.—Chairman, George S. Crampton; secretary, L. B. Eichengreen; managers, George S. Barrows, Douglass Burnett, C. E. Clewell, R. B. Ely and C. E. Ferree.

Pittsburgh Section.—Chairman, Lewis J. Kiefer; secretary, R. H. Skinner; managers, Henry Harris, H. S. Hower, Harold Kirschberg, H. H. Magdsick and G. W. Rossa.

The proposals to amend the constitution of the society were adopted by a vote of more than six to one. The principal amendments included provisions to create a grade of membership to be known as "members," the requirements for admission to this grade being somewhat higher than for the other grade of individual members known as "associate members." The annual dues of members will be $10.00, and of associate members $5.00.

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Southwestern Electrical and Gas Association.

lessens in volume it can not in any way be increased from its immediate vicinity.

This condition brings up the problems of the natural gas men. With the enormous expenditure made in pumping-plants, pipelines, etc., there is before them the prospect that all these may be virtually junked by failure or large diminution of the gas supply. While the known tendency of field companies is "to make hay while the sun shines", and adjust their rates so that profits will cover a tremendous rate of expected diminution or depreciation of supply, there are many forces at work that may prevent them from making such a profit during the life of the gas supply as will enable them to come out even at the end. It is, therefore, up to them also to look forward into the future and see whether there is any way that they can forefend against such a loss or diminution of profit as suggested above.

For the manufacturing gas men, in case natural gas invades their locality, the only prospect of staying in the business is to become subdistributors of natural gas. What they are to do with their manufacturing plants is an individual problem for each plant, and outside aid or advice cannot help them.

The natural gas men have one hope as regards their pipe lines, pumping plants, etc.; that instead of obtaining their supply from the earth they may be able to obtain it from large central gas manufacturing plants located at or near their natural gas supply, so that their apparatus and piping may be used for the general supply of a manufactured gas. Such an idea is not in any way impractical. The manufacture of any substance, whether it be material and ponderable, like iron, steel, wood or gas, or imponderable like electricity, can be more cheaply and economically accomplished in large units than in small ones. The new water power and steam electric generating plants for long transmission at high pressure have proved what may be done with electric current manufactured "wholesale." That the same is true of gas is probably doubtful at this moment, but it is general commercial experience that when there is necessity and demand for any particular thing by the people, the inventive genius of man finds such a substance and method —or a satisfactory substitute. It would be the height of foolishness to say that some character of gas that will fill the necessities of public service will not be made in the future in "wholesale" quantities and at a very low cost; and if the conditions arise, as seems probable, that the natural gas supply in Texas may increase for a time and then dwindle and die out, conditions are such as would naturally tend to bring the invention of some method of manufactured gas in large "central stations" and the supplying of it to communities many miles distant.

The next matter that needs the attention of gas men, for both manufactured and natural gas, is the question of rates. In this matter the electric current supply business has gone far ahead of gas. Most gas companies are still selling at the old "straight meter rate" with discounts, and this method of selling the product of a public utility is not only uncommercial, but absolutely unjust and inequitable. While the gas suppliers have not the handicap of the electric current suppliers, in that their product is incapable of storage and must be manufactured and delivered on instant demand by the customer at any time and in any quantity called for, still the gas men must recognize that the "demand" of the customer as to quantity, time and period, must be considered in their rates, and that the public is demanding and the electric current suppliers are furnishing "service" as well as current. Except in localities where there are peculiar conditions, the trend of public utility business is to make rates cover not only the product, but the "service" of that product to the customer, so that his use of the product shall be as economical, convenient, comfortable and safe as possible. Those public utilities who simply deliver their product to the consumer and let it go at that will get behind in the race for business, for the public demands "service" as a right, and, if properly handled in the beginning, is perfectly willing to pay a reasonable amount in addition to bare cost of the product in order to obtain the "service" that should go with the product to make it complete. Many gas companies have learned this, but a large majority still follow the old "flat rate" through the meter, with a discount for payment on a certain date, and leave the customer to the tender mercies of the plumber, the gas-fitter, and the gas-appliance man, whose every interest is against that of the gas company and whose general policy toward the consumer is to make as much money as possible, without regard to any "hereafter" either for themselves or for the gas company. Of course there are exceptions to this, but the gas business, especially since it has become a heating and cooking business, is peculiar in the fact that the larger part of the satisfaction of the customer is not in the gas itself, its quality, its candle-power, its "b. t. u. content", but in the "service" that he obtains from it in lighting, in heating and cooking.

This matter was brought up in the Gas Sessions at our last convention and fairly well discussed; and it seems to your Secretary that the year just passed must have brought home to the gas companies of Texas the fact that "rates" and "service" are just as important, or even more important, to them than to the electric current supply people.

There is sufficient in the gas situation in Texas at this moment to make both manufactured-gas men and natural-gas men consider these conditions most earnestly, and this communication is merely to bring before the gas-members of the Association these matters for their full consideration and discussion. (Signed)

H. S. COOPER, Secretary.

After formally acknowledging the receipt of the Secretary's communication, Mr. F. M. Lege read his paper on "Some Conditions of the Gas Business in Texas from a Commercial Standpoint."

In discussing this paper Mr. John W. Carpenter said: The business of a gas company includes many small customers from whom there is not sufficient income to make the investment pay. Therefore we should bear in mind the necessity of selling service, and putting emphasis on that phase of the business. Where these small customers get the gas with no fixed charge the gas company undoubtedly loses.

MR. JALONICK.—It might interest you to know how one plant of the Texas Power & Light Company endeavored to sell service rather than gas. In this particular property we make more money when we lose customers than when we gain them. As a consequence, our only way to make money is to sell service. So, to place this property on a net devisable basis we employed a woman who I suppose you might call a missionary. She was a saleswoman and went from house to house, not canvassing to gain new customers, but simply to be sure the old customers were satisfied, and that they were conserving their consumption; to see to it that the appliances used were properly adjusted and that they got results.

MR. LEGE,—Establishing proper rates with the conditions that now exist in Texas is going to be awfully hard. Speaking of the artificial gas business first: there are few towns of any consequence that have a rate higher than $1.50. The average domestic customer will run from $32 to $42 per year. I believe that a minimum monthly charge of $1 or $1.50 should be established all over Texas. The first 5,000 feet should cost $1.50 per M.; the next 5,000 feet somewhere in the neighborhood of $1.25; the next 5,000 probably a dollar. The main trouble is that the investment per customer is so large that a return of $32 to $42 per year for customers does not pay the interest on the investment and property depreciation. From natural gas the average, including industrial customers, is about $42.50 per customer, of which the distributing company gets one-third, or about $15.00. I happen to own eighteen natural gas companies, and in 1914 we lost a little over $51,000; that is allowing proper depreciation on the properties. It is impossible to handle a customer at $15 per year, read the meter, tend to leak troubles, and see that he gets proper pressure. When we do that, we have spent all our $1.25 a month, and have nothing for interest on our investment. Out of these eighteen properties, but one took care of depreciation and interest. That shows you that natural gas rates are entirely out of reason. In all of our eighteen towns the base rate is 50 cents a thousand, less 10 cents for cash; 40 cent gas. The customers that use an average of $42 per year pay 50 cents a thousand; some bills running as low as 25 cents and some up to $3 or $4 a month. The industrial business is what brings that up to an average of $42.50. Therefore, when we get a domestic customer, we are sure to lose money. It costs anywhere from $50 to $100 to connect him up, taking the whole plant into consideration; and when you consider that the field life varies from five to fifteen years, sometimes much shorter than that, and also that the soil near the field is very very hard on metals put under ground, you realize that the natural gas business is not a place for making money. In my opinion $1, or under very strong conditions probably 75 cents, should be established as a minimum price for natural gas, and $1 as the absolute minimum for artificial gas. There is no reason why natural gas should be sold any cheaper than artificial, because it is higher in heat value and it can be used as ecomically. Distributing companies in the natural gas belts make so small a margin on the gas that they pay no attention to economy, in fact are inclined to encourage waste to increase

their income per customer. I believe that the only solution is an accumulative rate, the first few thousand feet charged at a very high rate, and the succeeding reduced in proportion of the ability of the property to furnish the gas. I don't believe there is a distributing company in the United States to-day that is making any money; and nothing can be made on any customer using less than 5,000 feet a month.

If there was a charge of 50 cents a month for service, and then for the gas used so much a thousand, it would give the distributing company their cost; but when you do that you get a howl from the people that you wouldn't have if they paid a high rate for the first few thousand feet. That was tried in a city near Houston, and the people wouldn't stand for it.

THE CHAIRMAN.—Our experience in Dallas is that we couldn't get more than 50 cents for a minimum charge. Of course, our domestic business has always been done at a loss. Added consumers only increased the loss, except industrial boiler business. My idea is that a charge be made for service, and then the gas charged for at a certain price. It is the only thing that will help the natural gas distributor.

MR. STORM.—With electric rates they have a readiness-to-serve charge and then the rates per kilowatt, so they know when they get a customer that they will make some money whether he uses any current or not. That ought to be the way with gas companies. Customers are just as expensive whether they use twenty cents' or two dollars' worth. I think if it was taken up by all the companies in the State it could be done. We charge $1.50, $1.35 net. If they tell us that at Wichita Falls they have 50-cent gas, we have to go to the trouble of explaining and telling them all about it. I think natural gas companies were foolish to ever start at such a loss. The gas is worth as much as manufactured gas, and we ought to get as good a price for it. Why wouldn't it be a good plan for the gas men in this State to have a meeting during the winter, not connected with the electrical association, where we could get together and talk matters over? I don't mean that we should withdraw from this association, but there is nothing to prevent us from meeting separately, and really in that way I think we would get more benefit out of it than we do in this way.

MR. J. W. CARPENTER.—We had a mid-winter meeting last year and it would be a good idea for the gas men to attend the mid-winter meeting and have a special meeting as we are having now. In that way we would have the full co-operation of the Association as we have always had.

MR. LEGE.—Someone referred to the electric rate. I have been in both the electrical and gas business for about eighteen years, and when the electrical business first started in Texas we had as high as a 30-cent rate. We have reduced the cost of electricity from about 18½ cents a kilowatt to a great many points under 10 cents. If we had reduced the cost of producing gas in the same proportion we would be in the same condition as the electric companies. I quit the gas business a little over fifteen years ago and went back to it eight years ago, although when I left it I made up my mind that I would never go back. I believe to-day it is one of the best investments that exists—I am referring to artificial gas—simply because the people and the gas men are studying the business more closely than they have heretofore. In towns that have a $1.50 rate the company has a chance to make good money; but I fail to see that the artificial companies have any opportunity where they have natural gas.

The natural gas business is older than the artificial business. When you get something for nothing you are disposed to give it away and really waste the gas. Take, for instance, the mains just laid in Corsicana and Waco. The first year's operation on that main will look as if they were making 700 or 800% on the investment. When they realize what they really have made, if it is 7 or 8% it will be very good. They don't think of the extensions they will have to make, and the new wells to be secured. The gas companies are going into new fields all the time, and capital account is growing so fast that it is a very big proposition to-day. If the gas had been conserved and rates had been higher, the division would have been much better. People would have been better satisfied if service had been provided; they don't get service to-day and I don't think ever will. Buffalo is one of the oldest natural gas districts in the country, and by educating the public they got them to use a great deal of gas, and can make some money there. Conditions in Texas are different. We, in both artificial and natural gas business, do not have the demand through the whole year they have in the north. In the natural gas business for seven months of the year we do 2% of our business gross, and in two or three months do practically all of our business. Like the ice business, July, August and September are whales, and the balance of the time we struggle to get along. Fortunately for the ice business they can make enough in three months to pull through. In the gas business you don't make enough in the 3 months, because the rate usually drops, and the division received by the distributing company is not sufficient to take care of 7 months' struggle. The objection to raising the natural gas rate is this: Take the city of Wichita Falls, where there is a competing company, and our rate is 45 cents. The field is only a few miles off, and our competitors saw an opportunity to come in and make some money, as they owned the field and could pipe gas in and distribute it without having to take one-third of the gross, as we do. They cut the price to 25 cents, and got 100% on all they sold, and we get only 33⅓%. That is what one encounters in the natural gas business, and what makes the price what it is. We have an investment of about $45,000 in Henrietta, a small distributing system; another company comes in, and we have made a loss of from five to six thousand dollars a year for the past two years. In Corsicana we owned the wells and the gas supply is practically exhausted. A person moving from a natural gas to an artificial belt immediately starts friction. He begins to talk about fifty cent gas, and the city commission is compelled by public agitation to investigate the gas property. In investigating they look at things as they now are, and don't figure the ten or fifteen or twenty-five years that the company has not made a dollar. They don't take depreciation and all that into consideration; but simply say your plant is what it is to-day, and the fact that the pioneers didn't make any money is no fault of their's, and then the rates are reduced.

The only salvation is for the different companies to form some kind of combination whereby they will put this rate in, irrespective of what the people say, and then depend upon diplomacy to satisfy the public.

MR. H. S. COOPER.—Mr. Lege made a statement that probably some of you misunderstood. The gas companies have been giving service but haven't been charging for it. The electric light companies are holding up rates by giving service.

MR. STORM.—This brings up the point of the State Commission. I think we ought to have one and do our best to get it. A State commission wouldn't let another pipe line company come in a city, if your books show you are not making an abnormal profit and you are giving fair service.

The sessions on Friday were devoted to the discussion of elements which tend toward a better understanding by the public of the honesty of public service corporations in their dealings. "The Advertising Influence of the Employee" and "Welfare Work and the education of the Employee" were the principal papers discussed, presented respectively by F. R. Slater and Richard Meriwether.

The election of officers took place at Saturday's session, and the following were chosen:

President—David Daly, Houston.
First Vice-President—F. R. Slater, Dallas.
Second Vice-President—H. C. Morris, Dallas.
Third Vice-President—D. A. Hegarty, Houston.
Treasurer—J. W. Walker, Dallas.
Secretary—H. S. Cooper, Dallas.

Selecting the next meeting place was left to the Executive Committee. Galveston undoubtedly will be chosen again as the association is pleased with its success in getting an attendance there. D. G. Fisher, in his Presidential Address, recommended the appointment of a committee on Public Relations, which recommendation was approved by the Association, and the incoming President authorized to appoint the committee.

The report of the Accounting Committee, outlining a simplified system of accounting for small public utilities, including railway, light and power, gas, water and ice companies, was submitted. The accountants devoted two sessions to a discussion of this report, which was adopted. It is expected that it will be particularly helpful to companies not large enough to employ experienced accountants.

Surf bathing was the popular entertainment. The Suppliers' Section gave a dance on the evening of May 19th, participated in by all in attendance at the convention. On Friday evening the electrical men attended the rejuvenation of the Jovian Order, while the ladies played cards and had guessing contests for prizes offered them by the Assiociation, the Jovian Order and the Suppliers' Section.

Prize Winning Float.

The Portland Gas Light Company were awarded a silver cup for this very attractive float in the Fashion Parade given in Portland, Me., by the Portland Chamber of Commerce. Every important business in the city was represented by a display and competition was keen.

The Gas Light Company's float was 18 feet long by 8 feet wide, mounted on one of their auto trucks, and was decorated in green and white. On the front were three Automatic Water Heaters. One of them was connected to the radiator of the auto and by this means showed a continuously running stream of hot water. On the rear of the float was a Cabinet Gas Range and a Gas-steam Radiator. A colored chef, busy at the range, apparently baked bread and cooked griddle cakes; and the kettle on the range top was kept boiling by being set on a red hot 45 pound piece of iron packed in asbestos to keep it that way. The photograph also shows the front of the company's very fine office building.

How the Shops Can Assist the Commercial Department in Promoting Friendly Relations with the Public.

[Paper read by H. E. TURNER before Illinois Gas Association.]

The cultivation of friendly relations between the public and public service utilities is nothing more than a practical application of the Golden Rule. Much has been said on selling "service" as well as "commodity", but how can this better be accomplished than by intelligent co-operation of the Shops with the Commercial Department?

The Commercial Department is the pulse of the organization through which the Utility is in constant touch with the needs of the public; it is always alert for new and approved appliances that will increase the sale of gas. Much thought and money are expended in educating the public to the varied ways in which gas may be used economically, and we find the old school gas man, who sat in his office taking what business was offered, a thing of the past. Salesmen often make house-to-house canvasses inquiring if the service is satisfactory while trying to interest consumers in new appliances. In this way many complaints are received that otherwise would never reach the office, and too often they find appliances not in use due to some minor trouble that can be quickly remedied. If the salesman can assure the patron that a thorough investigation and permanent adjustment of the complaint will be made at once, and that it is a pleasure to be of service, much will be accomplished toward inspiring public confidence. The Utility is judged by the treatment and the service it renders to its customers, while only too frequently is it misjudged by the action of some untrained or careless employe who, if he had been properly trained and received the moral support of his superiors, might have been a booster for the company.

To the Shops we must look for the fulfillment of promises made regarding complaints and installing new equipment. Care should be taken in writing orders to be executed by the Shops that information is complete and concise, and above all else do not overestimate the capacity of the Shops to complete orders, since a broken promise, like a bad wound, always leaves a scar. Whether the Shops be under the direct supervision of the Commercial Department or are operating as an independent department, there must be close co-operation and harmony to insure prompt and efficient service. Eliminate friction and petty jealousies between heads of these departments and you will have no lost motion. A work schedule may be easily worked out by the heads that will insure work being handled promptly.

Since the success of the Commercial Department depends so much on the support given it by the Shops, is it not a duty to see that shopmen are equipped not only with good tools for the manual labor, but also with health and a general knowledge of the distribution department? High-grade tools are essential for good work, and even a first-class mechanic often becomes discouraged and careless if not properly equipped. The health of the workman should not be overlooked, since a man who is not in good physical condition, or who is burdened with troubles, will not have the cheerful disposition and the patience necessary to combat the obstacles encountered each day. A pleasing personality is as essential to a good shopman as to the salesman or office employe.

Education of shop employees along broader lines, though carried out with successes by many companies, is not receiving the attention its importance deserves. Especially is this true in the smaller companies where these men are called upon to perform any work from meter reading and complaint work to running new mains and services. Their knowledge and ingenuity are often tested to the limit. Many companies recruit their fitters from their own ranks by promoting helpers, this having the merit of attracting a higher class of helpers. The only qualifications of the helpers when put to work is usually a grade school education and a willingness to work. They are started out with a fitter who received his training from another fitter, and here is where the axiom "An ounce of prevention is worth a pound of cure," can profitably be employed. Why leave so important a matter as the training of future fitters entirely to men who may be incompetent or unwilling to transmit their knowledge to others? Are you not piling up troubles for the future by lack of forethought? But, whether you follow this system or employ practical fitters from outside your organization to fill the gaps in the ranks, how can you develop these men to the highest efficiency except by a systematic course of instruction?

Have you made it your business to see that these men are properly instructed and kept posted on new and improved methods? The customer must be impressed that the workman understands the work he is sent to do, if you would gain and hold his confidence. A second and third complaint, the cause of which should have been properly handled at the first call, may indicate a lack of training more than carelessness on the part of the workman. How best to train these shopmen has been worked out by the larger companies through classes for practical instruction and lectures. With small companies lecture courses and correspondence classes appear to be the practical solution. The lectures can be made so interesting and profitable to the shopmen that they enjoy occasionally spending an evening hearing some outside gas or appliance man talk on some particular topic and then inviting full and free discussion among the men. By making these meetings of a social nature the men will be put at ease, and they will bring out questions and answers that will be beneficial to all present.

As human nature is such a complex proposition, and since we daily come in contact with so many unreasonable people, it is well to keep prominently before those employees who meet the public in their homes, regulations governing their conduct and work. Some companies give their shopmen a printed book of rules for their guidance, but the same results may be obtained in the smaller companies by intimate daily contact of the shop foreman with his men on the consumers' premises. A word of encouragement here and a word of caution there will leave a more lasting impression on the men than a whole book of rules laid aside and forgotten.

While a list of rules for the guidance of shopmen may be largely expanded, the following, if lived up to, will not only keep the fitter out of trouble but allow the commercial manager and staff to meet their patrons without fear of receiving complaints; and also leave the customers in a more receptive mood to purchase additional equipment:

Promptness in attending to all orders is the first requisite, whether on new work or complaints.

Work should be completed on consumer's premises quickly and with the least possible noise and confusion. If an order cannot be completed at the time, the customer shall be notified at once and given an explanation of the delay.

Always clean up after completing any work, no matter how untidy the consumer's premises may be.

Neatness and well ordered habits are one of the surest indications of a man's competence in his work. A little care may save several complaints.

If cleanliness is more nearly godliness at one time than at another, it is when you are working upon a consumer's premises.

Be observing, talk little, and then only in a quiet, well modulated voice.

Never, under any circumstances, make any comments, favorable or otherwise, about a consumer's gas appliance, since some people have a wonderful faculty of misunderstanding.

While the most important work of the shops is to successfully handle the complaints and properly install appliances turned over to it by the Commercial Department, there is another field of usefulness that should be encouraged. Fitters often receive tips, in the course of their duties, of prospects for new equipment which, if turned over to the sales force, often lead to good sales with but little effort. Frequently they also find a new store opening up, or a party moving into a vacant house, of which the office has no knowledge. These are all live prospects for the salesman, and if he can get on the job without delay he usually brings back an order. Reward the fitter in some way for his efforts and you will obtain many leads that you never could obtain any other way.

In conclusion, I would ask you to remember that shopmen, like everyone else, are human and need encouragement. If the Commercial Department is wide awake and full of push you will find these conditions reflected by the shops, and their shoulders will always be to the wheel, ready to give a lift.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 20 cents.

1,139,698. Gas Burner. A. H. Merrill, Adrian, Mich.

1,140,026. By Pass Gas Cock. J. Elser, Gloucester City, N. J., assignor to Welsbach Light Co., same place.

1,140,113. Method of Manufacturing Gas. H. A. Carpenter, Sewickley, Pa., and D. D. Barnum, Worcester, Mass., assignors to Riter-Conley, Mfg. Co., Pittsburgh, Pa.

1,140,161. Gas Burner and Automatic Cut-Off Therefor. J. E. Jargstorff, New York, city.

1,140,192. Street Lamp. A. B. Shaw, West Medford, Mass., assignor to Automatic Gas Lighting Equipment Co., Boston, Mass.

1,140,198. Purification of Gas. H. M. Smith, Lexington, O.

1,140,337. Heating Coal Gas Retort Chambers and the Like. J. M. Rusby, Philadelphia, Pa., assignor to The United Gas Improvement, Co., same place.

1,140,338. Gas Broiler. W. J. Serrill, Haverford, Pa., assignor to The United Gas Improvement Co., Philadelphia, Pa.

1,140,339. Door Mechanism for Vertical Retorts. J. H. Taussig, Philadelphia, Pa., assignor to The United Gas Improvement Co., same place.

1,140,340. Means for Charging Vertical Retorts. J. H. Taussig, Philadelphia, Pa., assignor to The United Gas Improvement Co., same place.

1,140,420. Gas Regulating Valve. C. A. Thomas, Fayetteville, N. C.

1,140,655. Gas Burner Tip. T. A. Bell, New York City.

1,140,740. Gas Range. M. J. Green, Rockford, Ill., assignor to Eclipse Gas Stove Co., same place.

1,140,797-98. Coal Gas Generating Apparatus. H. A. Carpenter, Sewickley, Pa., assignor to Riter-Conley Mfg. Co., Pittsburgh, Pa.

1,140,994. Gas Range Attachment. F. J. Mellady, New York City.

1,141,072. Gas Generator. Willis Mitchell, Malden, Mass., assignor to Willis Mitchell Co., New York City.

1,141,096. Gas Heater and Stove. E. J. Allen, Albany, N. Y., assignor to Rathbone, Sard & Co., same place.

1,141,132. Operating Device for Coke Oven Doors. C. V. McIntire, Indianapolis, Ind., assignor to H. Koppers Co., Chicago, Ills.

1,141,335. Safety Device for Stoves. W. F. Hajek, Chicago, Ills.

1,141,521. Gas Stove. W. N. Best, New York city.

1,141,564. Automatic Cut-Off for Gas Stove Burners. L. E. Lemley and R. N. Leopard, New Orleans, La.

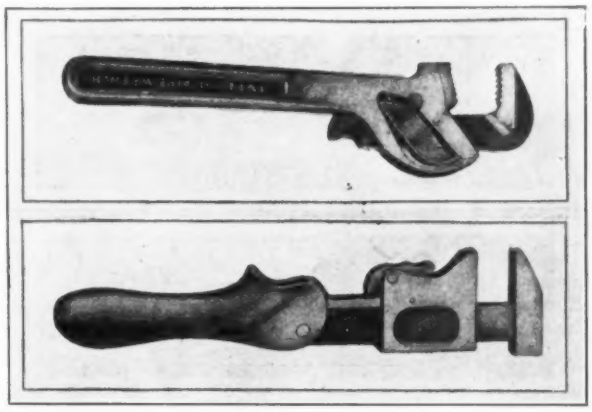
1,141,725, Gas Meter. A. Rogers, Wellington, New Zealand.

1,141,768. Gas Cock. G. W. Campbell, Philadelphia, Pa.

1,141.829. Method of Working Ammonia Recovery Producer Gas Plants. T. Rigby, Dumfries, Scotland, assignor to Wetcarbonizing Limited, London, England.

New Methods and Appliances.

QUICK-ACTING SCREWLESS WRENCH.—This monkey wrench and pipe wrench are of the quick-acting grip type, the jaw operating without a screw and controlled entirely with the thumb.

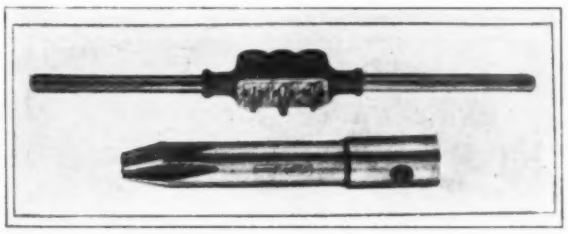


Recently Developed Wrenches; a Quick-Acting Monkey Wrench and a Pipe Wrench, Operating without a Screw.

In this way the backing away, which has to be done on a wrench where a thumb screw is used, is eliminated. Beside the quick-acting feature, the wrench is of the grip type, and the harder the handle is pulled, the tighter is the grip of the jaws on the nut. Another feature is that it is a ratchet wrench and does not have to be taken off the nut each time, as by merely pushing back on the handle, the jaw automatically opens, and grips on the next pull. The construction is simple, and it is possible to use it the same as an ordinary monkey wrench and also do several other things.

The pipe wrench is also quick-acting, being handled entirely with the thumb. The upper jaw has great forward and back play, so that it is possible to grasp the pipe quickly and release it practically instantaneously. The construction of the wrench is simple, there being only six parts in all.

INTERNAL GUIDE FOR PIPE STOCK.—An internal guide with reamer point for pipe threading tools has been placed on the market, designed to take the place of the various forms of bushing guides which have been in general use up to this time. The reamer point is intended to remove all burrs on entering the pipe. In this way two operations are performed at once, saving the cost of the



An Internal Guide for Pipe Threading Tool, designed to remove the Burr from the Pipe and start the Die Straight.

burring reamer, besides the time of one operation. The die is kept from tipping and making a crooked start, and the reamer guide working inside the pipe permits threads to be cut on a shorter projection than is possible with the old type of bushing guide. With this guide it is possible to thread nickel plated or highly polished pipe without marring the surface, an objection sometimes present with the external guide.

SILICA-GRAPHITE PAINT IN BOILERS.—A practice gaining adoption in progressive power plants is the use of paint for the inner surface of steam boiler drums, which is said to afford protection against pitting. Silica-graphite paint is used, and for a number of years the manufacturers of this paint have coated the steam drums of five B. & W. boilers developing 1,800-horse power, and the drums are in almost perfect conditions. In a plant equipped with B. & W. boilers developing 8,400-horse power, the interiors of the drums were scalded, painted both above and below the water line and allowed 48 hours to thoroughly dry. This treatment was repeated every 10 months and not only did it stop pitting, but where it had previously taken 6 men 7 days to clean the drums of one boiler, 2 men now clean them in a day.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

THE new officers of the Southern Gas Association are:

President—MacD. Dexter, Columbus, Ga.
Vice-President—Roscoe Nettles, Tampa, Fla.
Secretary-Treasurer—E. D. Brewer, Atlanta, Ga.
Directors for two years—F. L. Marshall, Augusta, Ga.; M. M. Milton, Roanoke, Va.; J. E. Montgomery, Birmingham, Ala.; R. B. Coombs, Nashville, Tenn.

The 1916 Convention will be in Tampa, Fla.

THE May 27 issue of the Concordia (Kas.) "Press" contains an illustrated description of the plant, office and show rooms of the Concordia Gas Company. The officers of the company are: President, L. R. Eakin; secretary and general manager, J. J. Donelan; new business manager, W. F. Doelker. This company has been in operation but little more than a year, and is showing increasing sales, month by month, due to their insistance on giving good service.

MR. E. BURT FENTON has been appointed manager of the new publicity department established by W. S. Barstow & Company, 50 Pine street, New York City, who control thirty-eight electric-light, gas and electric-railway properties in various parts of the country.

WORK on the new gas-holder at Devereaux, Mass., for the Lynn Gas and Electric Company is well under way. The contractors, the Bartlett-Hayward Company, have the tank completed and are working on the lifts.

THE Improved Equipment Company have just completed two refills on the benches of 6's at Guelph, Ontario, with silica settings and sectional retorts, and equipped with the Doherty Bench Fuel Economizer. Mr. Charles Bertram was the erector. Mr. Sayer, chief engineer of the company, started them in operation.

THE plant of the Plymouth (Mass.) Gas Light Company is a busy place just at present, and one of the problems is to keep things going to serve the public and still be able to carry along the changes. The walls of the addition to the main building, which have been raised a couple of stories, are about to height, and the roof will soon be in place. A new iron roof is being put on the retort house and a new bench for six retorts is being installed. In the yard two wells are being sunk by the process of washing and driving. The first is down about 30 feet, and as no water was obtained, a second attempt was made with a 4-inch pipe a bit farther to the north. Water at hydrant pressure is sent down an inner pipe to the clay, which is being encountered just now at a depth of about 45 feet, and as the fluid softens and washes out the clay, a heavy driver on the casing pipe settling the pipe. It is expected that the pipe will have to be sent down about 60 feet before water bearing gravel is encountered.

AT the election of the Cleveland "Gas Meeters" the following officers were elected for the year beginning June 1st, 1915:

J. G. Hanks, Chairman.
F. H. Marquard, Commissioner.
George Harris, Commissioner.
W. G. Barker, Secretary and Treasurer.

J. W. REEVE, general manager of the Gainesville (Fla.) Gas and Electric Power Company, has been appointed receiver of the company by the Circuit Court.

MESSRS. A. R. MOFFITT, J. A. McGilvary and C. A. Thomas, all of the Fayetteville (N. C.) Light and Power Company, have taken out patents on an improved pilot light, the principle points in which are a valve made without any metal parts in contact and a cylindrical tip filled with mineral-wool. The appliance has been favorably passed upon by several prominent lamp makers.

THE Consumers' Gas Company, Toronto, has put in force a minimum charge of 50 cents a month.

THE Indiana Lighting Company has just finished a complete test of the gas meters in service for three years and more in Fort Wayne, and in all instances where they were registering a little fast rebates were issued to gas users. In most cases the gas company was loser, for in 90% of the cases the meters tested slow.

IN drafting the ordinance that will regulate the rates for gas furnished by the Pacific Gas and Electric Company and the Sacramento Natural Gas Company the Sacramento City Commission decided to permit a raise of 10 cents a 1,000 feet for gas of 700 to 800 B. T. U. It was decided not to make any change in the rate of $1 for ordinary gas.

THE Honorable Ira C. Copley was re-elected president of Coal Products Manufacturing Company at the annual meeting of the stockholders and directors at Joliet May 20.

THE Board of Public Works of Indianapolis has announced that no more petitions for gas or water main extensions will be received after June 1. Members of the board said that the Citizens Gas Company and the Indianapolis Water Company already have agreed to lay more mains this year than their franchise requires. If any more mains are ordered laid, they will be made only on streets that are to be improved permanently.

CHARLES H. GEIST, of Philadelphia, Pa., owner of the Northern Indiana Gas and Electric Company of South Bend, made a wager of $100,000 to $1,000 that he can defeat Dr. Edward Martin, a member of the surgical staff of the University of Pennsylvania, at a game of golf next year. According to the terms of the wager, Mr. Geist agrees, if he is defeated, to donate $100,000 to endow a chair of surgical research in the University medical school. If Mr. Geist wins, Dr. Martin is to buy ten shares of the Seaview Golf Club's stock of Seaview, N. J., at $100 per share.

THE Muskogee (Okla.) Gas nnd Electric Company has joined the great coterie who believe that mute evidence is best. A sealed pint fruit-jar is kept on the desk of the application clerk as an argument against people who want meters of the "quarter-in-the-slot" variety. The company quit using quarter meters over a year ago, and only straight rate meters are installed. The jar contains buttons, slugs, bits of car seals, bread checks, beer checks from outside cities, pocket pieces, souvenirs, and innumerable pieces of junk of every description. And for every one the company gave up a quarter's worth of gas.

THE Texas Power and Light Company of Brownwood has begun improvements and extensions of its gas plant that will largely increase its capacity and will entail an expenditure of over $25,000. The company will also inaugurate a new scale of prices.

THE Utah Gas and Fuel Company has announced a reduction in rates in Salt Lake City for gas used for lighting, from $1.30 to 90 cents net; and gas for all purposes will be furnished through one meter and at a uniform rate. "The reduction is made possible by the increase in the company's fuel gas business to such an extent that the company can now afford to lower the price of illuminating gas," says J. C. D. Clark, general manager of the company.

THE City Gas Works, Wheeling, W. Va., is about to be closed—a losing proposition since the day it was completed in 1908. In its message to the city council the Board of Control will recommend the immediate closing of the plant. Figures for several years back show that the plant has been and is now operated at a great loss. There is not a report for a single month that does not show at least one-fourth of the gas made "unaccounted-for," due to leaky pipes throughout the system. In addition to this must be added increased cost of oil used in making gas and a falling off of consumers.

BENJAMIN C. ROBINSON, secretary-treasurer of the United Light and Railways Company since its organization, has resigned to take effect June 1, and will also retire from the directorate. Mr. Robinson began his business career with a clerkship in the Michigan Trust Company. He served an apprenticeship in the public utilities with the Detroit Gas Company, and later was manager of the Flint Gas Company. He joined the United Light and Railways Company

upon its organization. At the meeting of the directors of the company in Chicago, L. H. Heinke was elected secretary and Claude M. Hurd treasurer. These gentlemen have been connected with the company as assistant secretary and treasurer, respectively.

EXTENSIVE repairs and improvements are being made at the plants of the Albuquerque (N. M.) Gas, Electric Light and Power Company. The improvements at the gas plant include rebuilding of some of the old retorts and the erection of a new bench of six retorts.

THE Poudre Valley Gas Company, Fort Collins, Col., is asking for bids on an additional holder of about 100,000 cubic foot capacity.

FOLLOWING the announcement of the selection of the fifth member of the Flint (Mich.) Board of Gas Arbitrators by the choosing of Neil J. Berston, proposed by the company, the city council adopted a resolution requesting the Michigan Light Company to comply within 30 days with the terms of its franchise requiring that a majority of the directors of the company live in the city.

GAS will be used to light the East Hempstead (N. Y.) Lighting District, counsel advising that the Town Board could advertise and specifically ask for rates for gas lighting. The residents of East Hempstead some time ago petitioned the Board to create a lighting district, which was done after a public hearing. When the question of advertising for bids for lighting came up an argument ensued as to whether the Board could advertise for gas only, the large majority of the residents being in favor of gas lighting. The matter was referred to Supervisor Smith to secure opinion of counsel, and the attorney has submitted his opinion.

THE big new holder of the Cambridge (Mass.) Gas Light Company has been filled with water for the first time, the work of filling requiring several days. The lifts are being tested, but it will be some months before the holder can be put into operation, due to a large amount of piping that must first be done. Some idea of the size of the tank may be had when it is known that it will require 8,000,000 gallons of water to fill it. In other words, the capacity of the tank is equal to the consumption of water for the entire city of Cambridge on a normal day.

ARTICLES of incorporation have been filed with the secretary of State of Minnesota for the Northern Utilities Company by F. B. Myers, J. A. Kennedy, T. F. Lynch, J. P. Smith and J. P. Boyle. The officers are: F. B. Myers, president; J. A. Kennedy, vice-president; T. F. Lynch, secretary and treasurer. The general nature of its business is to manufacture and deal in gas, coke, tar and all other residual products resulting from the manufacture of gas. Mr. Myers is a banker at Biwabik, Minn. Mr. Kennedy was formerly superintendent of the Virginia Electric Power and Water Company, and is now one of the owners of the gas plant at New Ulm and interested in the proposed gas plant for Eveleth and Gilbert; Mr. Lynch is a plumber at Eveleth; Mr. Smith is a well known business man of Duluth, and Mr. Boyle is a lawyer and a former State Senator.

PROTESTS against the new gas rates fixed by the City Board of Public Utilities have been filed by the Los Angeles Gas and Electric Company, the Economic Gas Company and the Southern California Gas Company, each maintaining that the rates are too low; and the Los Angeles Gas and Electric Company says, further, that the rate resolution is "absurd" and "impossible." This company also asserts that it will be impractical to carry out the provisions relative to the quality of gas to be served, and that the resolution is drawn so as to force the use of natural gas rather than the gas manufactured by the company.

TENDER of $74,053.13 in cash for its gross earnings tax by the Washington (D. C.) Gas Light Co., was refused by the collector of taxes, who claims that the company owes $109,801.94. The company claims that the cost of raw materials used in the making of gas should be deducted from the amount assessed. The situation is similar to that of last year, when the company paid the levy under protest, and entered suit for the recovery of the portion which it claimed was in excess. That case is still pending, but the company claims that the recent overruling of a demurrer entered by the District in effect upholds its contention that there should be a deduction for the cost of raw materials to arrive at the gross earnings.

UTILITIES COMMISSION NEWS.

OHIO COMMISSION CHANGES.—Mr. Lawrence K. Langdon, of Lebanon, was appointed a member of the Ohio commission on May 27, to succeed Charles C. Marshall, whose resignation has been in the hands of Governor Willis for some time. Mr. Langdon has been counsel for the commission since the present administration was inaugurated, and was the author of the first draft of the public utilities law. He assumed office on June 1. Mr. Freeman T. Eagleson, of Akron, special counsel in the attorney-generals' office, was appointed counsel for the commission to succeed Mr. Langdon.

PENNSYLVANIA DECISION ON EXTENSIONS.—The Pennsylvania commission has declared that it has not the power to compel a public service company to extend its facilities beyond the territory covered by its charter or amendments thereto. The city of Scranton passed an ordinance authorizing extension and operation of the Scranton railway from the present end of the tracks on Luzerne street to other localities. The company refused to accept the ordinance or make the extension, and the city filed a complaint.

The commission refused to approve the contract for street lighting made by the township of Jenkins and the Jenkins Township Electric Light, Heat and Power Company. Objection to the contract was filed by the Citizens' Electric Illuminating Company, which contended that it was providing a satisfactory light to the public in Jenkins Township at just rates. The commission said: "When services that may be rendered with profit by only one company are divided among two companies, neither one of which can conduct its business at a profit, the services are quite certain to deteriorate. The ultimate effect of unprofitable competition is a relatively high charge for a poor service."

ARE PIPE LINES COMMON CARRIERS?—For the first time in the history of California, the legal question has been raised whether or not a company conveying natural gas through a pipe line is a common carrier.

It is brought up in the case of the Midland Counties Public Service Corporation vs. the Santa Maria Gas and Power Company.

The Santa Maria Company, which controls the natural gas rights in the oil field of the same name, had petitioned the Railroad Commission for an order permitting it to invade the territory in and about San Luis Obispo, now served with artificial gas by the Midway Counties Corporation.

In opposition to the application the Midway Counties raised the point that the natural gas company is really a common carrier and that it should be compelled to furnish natural gas at wholesale rates to it, at the city limits of San Luis.

The progress of the case is being attentively followed by all companies transporting natural gas, as the final decision of the question may revolutionize the industry.

REFUSES SANCTION TO PURCHASE.—The Ohio Public Utilities Commission has refused the application of the Ohio Gas and Electric Co. to purchase the plants of the Middletown Gas and Electric Co., the Franklin Electric Co., the Leetonia Gas and Electric Co. and the electric department of the Lisbon Gas Co., and to issue $700,000 30-year 6% bonds to be sold at 85, $200,000 10-year 6% debentures and $795,000 common stock at 70.

In denying the application the Commission said it was done on the following grounds: "That it is proposed to capitalize the property largely in excess of the real value and, incidentally, in violation of law, it was proposed to issue capital stock in excess of the combined capital stock of the companies to be merged and to increase the joint indebtedness. It also appears that the service to be furnished the public is not to be bettered, made more adequate, or to be supplied at a just charge or rate." It has not yet been decided by the men behind the new company whether or not an appeal will be taken to the Supreme Court of the State, as may be done under the Ohio utilities law.

METER-TESTING BILL IN OHIO.—The Gallagher bill, giving the Public Utility Commission final authority over the testing apparatus with which gas and electric companies prove meters and other service-measuring devices, was passed by the House on May 27. The commission may test the apparatus at the point where it is in use if it so elects. The bill is ready for the signature of the Governor, unless it should be changed on reconsideration.

Financial Notes.

THE MONTREAL (Can.) LIGHT, HEAT AND POWER COMPANY'S earnings for the year ending December 31, 1914, were as follows:

Gross revenue		$6,617,105
Operation and maintenance	$2,881,198	
Depreciation and renewal reserve	650,000	
		3,531,198
Net revenue		$3,085,907
Fixed charges		489,164
Net income		$2,596,743
Dividends paid	$1,360,000	
Dividends payable May 15, 1915	467,500	
		1,827,500
Surplus from year's operations		$769,243
Less appropriation:		
Officers and employees' pension fund		10,000
Transferred to general surplus		$759,243

JUDGE A. N. HAND has appointed Arthur S. Beves receiver of the Atlantic Blaugas Company, with office at 25 Madison avenue and a plot at Long Island City, N. Y., on application of Eugene Bernheimer of Los Angeles, a creditor for $15,000 and a holder of 650 shares of stock. Liabilities are $128,000.

THE EQUITABLE ILLUMINATING GAS LIGHT COMPANY, operating the Philadelphia Gas Works under the lease to the U. G. I. Co., has declared the regular semi-annual dividend of 3% on the preferred stock, payable June 15, to stock of record June 8.

DIRECTORS of the OHIO CITIES' GAS COMPANY have re-elected the old officers. They are: Beman G. Dawes, President; F. S. Heath, Secretary-Treasurer; and W. E. Hutton, Vice President. They also declared the usual quarterly dividend of 1¼% on the preferred stock, payable July 1. The directors attending the meeting were: John L. Bushnell, Springfield; R. E. Danielson, Chicago; Warren C. Fairbanks, Chicago; Henry M. Work, New York; and L. G. Addison, W. F. Burdell, Beman G. Dawes and T. J. Jones, of Columbus.

THE Public Utility properties under the management of H. M. Byllesby & Company report substantially increased gross and net earnings for the first four months of 1915 compared with the previous year, and it is expected that the rate of gain will be maintained for the balance of the year. Marked increases in earnings of Northern States Power Company, embracing gross, net and surplus, have already been reported. It is stated that the increase in surplus earnings beyond operating expenses, taxes, interest charges and preferred stock dividends of all the properties under the management of this house has been in the first four months of 1915 $169,844. The holdings of Standard Gas and Electric Company in these properties gives it an interest in the increased surplus in excess of $100,000. A substantial part of this increase in surplus, following the practice established heretofore, will be allowed to remain in the properties. The increased combined earnings of all Byllesby properties for the first four months of 1915 follow:

Month.	Gain in gross.	Gain in net.	Per cent. net gain.
January	$93,298	$83,245	12.2%
February	82,320	64,804	9.8%
March	114,416	81,803	15.2%
April	115,400	66,992	12.5%

THE EASTERN SHORE GAS AND ELECTRIC COMPANY recently organized, will take over and consolidate all the gas and electric companies operating on the Eastern Shore of Maryland and Delaware. The capital stock of the company is $750,000, of which $150,000 is preferred and $600,000 common. The new corporation has applied to the Maryland Public Service Commission for authority to take over the Salisbury Light, Heat and Power Company, with $100,000 capital stock, at a price not to exceed $210 a share, and the Cambridge Gas Company's $100,000 capital, at not to exceed $190 a share. Neither company has paid a dividend in the past 5 years; and the estimated assets of the Salisbury Company are $195,092, and of the Cambridge Company $237,790. The Cambridge Company also has $100,000 in bonds outstanding.

THE Board of Directors of STANDARD GAS & ELECTRIC COMPANY has declared a dividend of 1% upon the preferred capital stock of the company, for the quarter ended May 31, payable in script June 15, to stockholders of record May 31.

THE MUSKOGEE GAS & ELECTRIB COMPANY has declared the regular quarterly dividend of 1¾% on the preferred capital stock of the company for the quarter ended May 31, payable June 15, to stockholders of record May 31.

THE Massachusetts Board of Gas & Electric Light Commissioners has approved the issuance of $250,000 additional stock by the New Bedford Gas & Edison Light Company to defray the cost of improvements already made or to be made to its plant. The stock is to be issued at a par value of $200 a share, and if any shares remain unsubscribed for by stockholders they shall be placed on sale after due notice of the sale is published.

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